Bones and Stones

Objective

Students will read about ancient farming cultures in Oklahoma and the early development of farming tools. Students will design and construct simple farming tools.

Background

What would you use if you wanted to clear a space in the grass for a garden? A garden fork or good sharp spade would help you cut through the sod and loosen it enough to clear it out. A hoe would help you break up the dirt clods. A gas-powered rotary tiller would make the task faster and easier.

But what if you lived in an age when you had to make your own tools with whatever was at hand—wood, stones and the bones of animals you had killed for food? In grassy places like those that cover Oklahoma, farming with bones and stones would be very difficult. Primitive tools would have a hard time cutting through densely thatched grass roots.

The first farming probably started in flood plains and swampy areas around the Nile, Tigris and Euphrates Rivers, in what is now Egypt, Turkey, Iraq and Iran. In these areas the ground was soft and loose, and the farmer could work the soil and plant seeds gathered from the wild.

In the land we know as Oklahoma, early farmers also took advantage of the soft, loose ground along the rivers and streams. Farmsteads and small villages of the MISSISSIPPIAN CULTURE (SPIRO MOUNDS CULTURE) were scattered along the streams in the northern Ouachita Mountains and the southern Ozarks of Oklahoma and Arkansas 1100 years ago. Archaeologists have found some of the stone hoes and axes these farmers used to grew corn, beans and squash or pumpkin.

People of the ANTELOPE CREEK CULTURE, who lived nearly 700 years ago in the Southern High Plains of the Oklahoma Panhandle, used leg bones and shoulder blades of bison to make digging stick tips and hoes. Garden plots were prepared where fertile soils could be watered from springs and streams.

Between 900 and 600 years ago, Plains Villagers of the WASHITA RIVER CULTURE farmed the fertile terraces along the rivers and creeks in central and western Oklahoma, using hoes and digging sticks made from select bison bones and wood. They used handstones to grind corn, nuts and other edible seeds in stone basins.

1500 years ago the FOURCHE MALINE people were making stemmed hoes and grinding stones. Although archeologists have not recovered direct evidence that they were cultivating corn, beans or squash, the increasing presence of axes (which could be used for clearing land), hoes and grinding stones may be indirect evidence of part-time farming.

By 400 years ago, CADDO people were farming the Red River Basin of southeast Oklahoma. They were expert farmers, raising two crops of corn and other vegetables a year.

Prehistoric farmers made tools of the materials that were available—

Oklahoma Academic Standards

GRADE 3

Speaking and Listening: R.1,2,3; W.1,2. Fluency: 1. Reading and Writing Process: R.3. Critical Reading and Writing: W.1. Vocabulary: R.1,3,5. Research: R.1,2,3,4; W.1,2,3 Geography: 2A. History: 1,3,11 Forces and Interactions: 2-1

GRADE 4

Speaking and Listening: R.1,2,3; W.1,2. Fluency: 1. Reading and Writing Process: R.3. Critical Reading and Writing: W.1. Vocabulary: R.1,3,5. Research: R.1,2,3; W.1,2,3 Energy: PS3-4

mostly wood, bones and stone. Early toolmakers would chip stones by hitting one against another to form an edge that could be used for cutting. The first agricultural tool was probably a digging stick, a straight, sharp stick or bone used for digging roots out of the ground to eat. Axes were also useful for clearing wooded areas.

Later someone got the idea to weight the digging stick with a stone or use a forked stick with one side cut short. That way the farmer could use his or her foot to push the stick deeper into the ground. This design would be used later to develop what we know as a shovel or spade.

Another way to use the forked stick was for the farmer to hold onto the largest limb and pull it along behind so the short, pointed fork would cut into the ground. This was the design used later to develop the plow.

Another early tool was the scythe. The Stone Age farmer used this tool to cut tall grass. The grass could be used to cover the walls of a hut and to make mats to cover the floor for sleeping. The sickle could also be used to cut the grains the farmer had planted.

Once the grains were harvested, they were probably roasted and stored for later use or ground into flour on a grinding stone. The grinding stone was a saddle-shaped stone. The grains would be spread out on the grinding stone and crushed with a hand-held stone, called a quern. Sometimes the grains would be crushed in a mortar and pestle. A mortar is a hollowed out stone vessel. The grains or seeds would be crushed with a club-shaped pestle.

Materials

assorted simple hand gardening tools and cooking utensils, e.g., nut cracker, mortar and pestle, hand trowel, weeding tool, gardening fork, watering can, pots and pans

sticks

stones

rawhide

straw

rope made from fibrous material like jute

vines

safety goggles

English Language Arts/Social Studies

1. Read and discuss background and vocabulary.
2. Provide copies of the Reading Page included with this lesson.
   —Students will read independently or as a class.
   —Students will make timelines of the different prehistoric farming cultures mentioned in the reading.
   —Students will locate the cultures on the map of Oklahoma included with this lesson.
3. Discuss what simple tools students use in their daily routines (toothbrush, forks and spoons, pocket knives, etc.)
   —Brainstorm about the tasks early humans would have had both before and after the development of agriculture (finding food, preparing food—cracking nuts, grinding seeds, cooking, digging up roots, finding firewood, moving firewood, finding water, moving water, building shelter, making clothing, cultivating soil, planting seeds, feeding animals, etc.)
   —Ask students to consider what early humans might have used to accomplish these tasks.
   —Students will pretend they are prehistoric people and write narratives explaining how they take care of some daily tasks.
4. Students will work in groups and use online or library resources to research one of the ancient farming cultures mentioned in the reading.
   —Groups will present their research to the class.

Science

1. Pass around the assorted simple hand gardening and cooking tools for students to examine.
2. Discuss safety in use of tools.
3. Divide students into groups of three or four. Bring native (hard shell) pecans or walnuts to class, and give two or three to each group.
   —Students will pretend they belong to a hunter-gatherer society that just found a grove of pecan or walnut trees. They have never seen the nuts before but think they might be good to eat.
   —Working in groups, students will go outdoors and use whatever natural materials they can find to get the nuts open. (They must not use their shoes since hunter-gatherers probably didn't have hard shoes.)
   —Students will keep notes and report back to the class about what worked best to crack the nuts and what problems they had.
4. Provide materials listed in the materials list for tool-making.
   —Students will work individually or in groups to design and construct simple tools that can be used to complete one or more of the tasks defined in the class discussion above.
5. Create a classroom display of the student-designed tools.
   —Students will create labels to explain the tools' functions.
6. Students will use their hand-made cultivating tools to cultivate a flower bed outside. Provide seeds for students to plant.
7. Bring peanuts or sunflower seeds to class for students to grind with their hand-made grinding tools.
8. Review simple machines (lever, pulley, inclined ramp, etc.).
   —Students will identify the simple machine or machines used in the tools they have designed.
9. Bring a mortar and pestle to class.
   —Students will take turns using it to grind fresh herbs or garlic.
   —Mix the pulverized herbs with cream cheese, and let students spread it on crackers to eat.
   —Students will experiment with grinding other materials they find in or out of the classroom—chalk, grass from the playground, etc.
10. Bring in an assortment of gardening or agriculture-related tools, or ask a farmer or equipment dealer to bring some in.
    —Students will discuss possible uses for the tools before learning their true use.

Extra Reading

Barnes, Trevor, and Tony Robinson, *Archaeology (Kingfisher Knowledge)*, Kingfisher, 2004.

Gibson, Karen Bush, *Native American History for Kids: With 21 Activities*, Chicago Review, 2010.

King, David C., *First People*, DK Children, 2008.

Lorenz, Albert, and Joy Schlech, *Journey to Cahokia, A Boy's Visit to the Great Mound City,* Harry N. Abrams, 2004.

Mann, Charles C., *Before Columbus: The Americas of 1491*, Holt McDougal, 2009.

Woods, Michael, and Mary B. Woods, *Ancient Agricultural Technology: From Sickles to Plows (Technology in Ancient Cultures*, 21st Century, 2011.

Vocabulary

digging stick—a straight, pointed stick, sometimes weighted with a stone, used in digging up roots and later for soil cultivation

grinding stone—a saddleshaped stone used with a hand-held stone to crush grain and seeds

mortar—a vessel in which substances are crushed or ground with a pestle

pestle—a club-shaped hand tool for grinding or mashing substances in a mortar

plow— a farm machine used to cut, lift, and turn over soil

primitive— of or relating to a people or culture that lacks a written language and advanced technologies

quern—a hand-held stone used for crushing grains or seeds against a flat grinding stone

scythe—an implement consisting of a long, curved, single-edged blade, with a long, bent handle, used for mowing and or reaping

thatched— covered with a mat of plant matter that has accumulated on the soil surface of a grassy area (as a lawn)

rotary tiller—farm implement that stirs and pulverizes the soil using a rotary motion of disks or teeth

terrace— one of a group of horizontal ridges made in a hillside to conserve moisture and prevent loss of soil for agriculture

Reading Page

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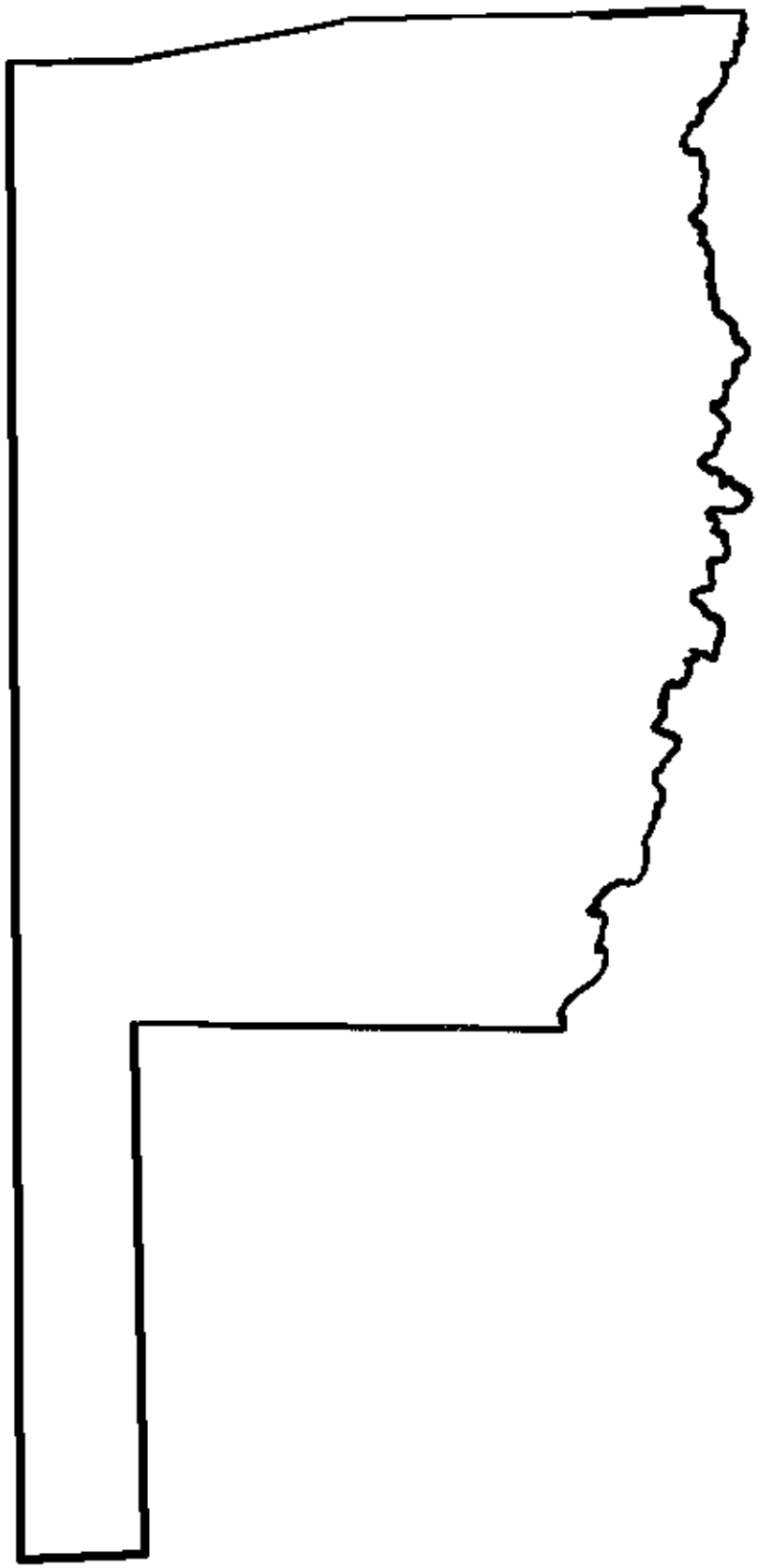
Oklahoma Ag in the Classroom is a program of the Oklahoma Cooperative Extension Service, the Oklahoma Department of Agriculture, Food and Forestry and the Oklahoma State Department of Education.

Oklahoma Map



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